EXHIBIT B

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

NOUJOUD ACHKAR and,	:	
JOSEPH ACHKAR, W/H	:	**CIVIL ACTION**
Plaintiffs,	:	
	:	
vs.	:	
	:	**NO. 5:18-cv-02860-JFL**
WISCONSIN CHEESE GROUP, LLC	:	
d/b/a LA MORENITA BRAND and	:	
WALMART, INC.	:	
Defendants.	:	

AFFIDAVIT OF MICHAEL A. SULZINSKI, Ph.D.

COMMONWEALTH OF PENNSYLVANIA §
§
COUNTY OF LACKAWANNA §

BEFORE ME, the undersigned authority, on this day personally appeared, MICHAEL A. SULZINSKI, who, being by me duly sworn upon his oath, stated as follows:

1. My name is Michael A. Sulzinski, I am over the age of 18, and I am competent to make this affidavit. I have personal knowledge of the facts stated herein and they are all true and correct.

2. I declare that on the basis of my knowledge, skill, education, training and experience, I am qualified to render an expert opinion in this matter. I hold the ranks of Adjunct Associate Professor at Geisinger Commonwealth School of

Medicine, and of Professor in the Department of Biology, and in the Program of Biochemistry, Cell and Molecular Biology (BCMB) at the University of Scranton (Pennsylvania).

3. I received the Bachelor of Science degree in 1980 in Plant Science from The Pennsylvania State University and I received the Ph.D. from Cornell University in 1984. Immediately upon receiving my doctorate, I held the position of Molecular Biologist, Virological Testing at Lederle Laboratories Division of American Cyanamid Company, working on poliovirus and herpes simplex virus. I then held the position of Scientist, and then Group Leader for Roche Diagnostic Systems, developing molecular tests to detect bacteria and viruses. As one of three inventors, my work contributed to the filing and issue of patents to detect the bacteria *Chlamydia trachomatis* by polymerase chain reaction (PCR). I also worked on DNA based molecular assays for human T-lymphotropic virus (HTLV-I) and human immunodeficiency virus (HIV).

4. In 1990 I was hired as Assistant Professor of Biology, University of Scranton (Scranton, PA), and was subsequently promoted to tenured Associate Professor, and currently (full) Professor of Biology, Program in Biochemistry, Cell and Molecular Biology. I teach (or have taught) the following courses: *Medical Microbiology* (Biology 210); *Microbiology* lecture and laboratory (Biology 250); *Virology* lecture and laboratory (Biology 364); *Modern Concepts of Human Biology* (Biology 100), *HIV/AIDS* (Interdisciplinary 211), *Infectious Disease* (Biology 384); *BCMB Seminar* (BCMB 284) and *Molecular Biology of Cancer* (BCMB 464 and Biology 464).

5. I received the Edward Gannon, S.J. Award for Teaching Excellence, and I was named 2005 "*Teacher of the Year*" by the University of Scranton's Class of 2005, and received the University of Scranton 2005 Council for Advancement and Support of Education (CASE) "*Professor of the Year.*" I was also the recipient of the 2006 Provost Teaching Award for Excellence in Advancing Interdisciplinary Study.

6. At present, I direct a laboratory research program that includes the application of a DNA amplification technique known as real-time Polymerase Chain Reaction (RT-PCR). My research laboratory is investigating the presence of *Burkholderia gladioli*, a bacterial pathogen in the lungs of immunocompromised persons affected by cystic fibrosis.

7. In summary, since as an undergraduate student in 1978, I have been studying, handling and growing bacteria; performing and directing laboratory research, and teaching about bacteria and other microbes in the classroom and laboratory. I bring over forty years of expertise to this case with my knowledge, skill, education, training and experience.

8. This present Declaration is based upon sufficient facts in this case. This Declaration is the product of reliable principles and methods, as I cite specific peer-reviewed scientific publications that detail principles that are generally accepted in the scientific community. Finally, in forming my expert opinion, I have applied those generally accepted principles and methods to form conclusions based on the analysis of the facts of this case.

9. In this action (United States District Court, Eastern District of Pennsylvania, No.

5:18-cv-2860) I have examined hundreds of pages of confidential documents relating to this case. My conclusions are drawn from an examination of the facts contained within case-specific documents, and from peer-reviewed published scientific manuscripts. My opinions flow from those conclusions, using my professional knowledge, skill, education, training and expertise.

10. I am a member of the following professional associations: American Society for Microbiology, and American Society for Virology.

11. Attached hereto as an Appendix is a true and correct copy of my *curriculum vitae.*

12. Noujoud I. Achkar purchased a cheese product from Walmart, Inc., (Whitehall, Lehigh County, Pennsylvania) that was produced and distributed by Wisconsin Cheese Group, L.L.C., d/b/a La Morenita Brand. After Ms. Achkar consumed some of the product, she developed an illness that required hospitalization at Lehigh Valley Hospital in Allentown, Pennsylvania. She was admitted to the hospital and was treated for *Listeria monocytogenes* meningeoencephalitis and other conditions related to an infection by *Listeria monocytogenes* (commonly referred to simply as *L. monocytogenes*)

13. Plaintiff alleges that the cheese product that she purchased and consumed was contaminated by *L. monocytogenes*, and that this contamination led to a food-borne infection that was the proximate cause of her *L. monocytogenes* meningeoencephalitis.

14. Ms. Achkar, 76 years old at the time, presented to the hospital with acute encephalopathy and right sided weakness (p 1556). She was hospitalized from May 2 to May 15, 2017.

15. Ms. Achkar, during her hospitalization, was diagnosed with an infection of *L. monocytogenes*. The infection manifested as *Listeria* meningitis (Bates page 909) encephalitis/meningitis (Bates page 916), *Listeria* meningeoencephalitis (Bates page 826), *Listeria* sepsis and *Listeria* bacteremia (Bates page 869). The infection had spread to her brain as an abscess (Bates page 890) with intracranial and spinal cord infection with *Listeria* infection. It was a severe and life-threatening infection that was treated with aggressive antibiotic therapy that included the drugs ampicillin and gentamicin (Bates page 822). Her medical records further document that she had a deep brain abscess caused by *Listeria.*

16. Polymerase chain reaction (PCR)[1] testing of fluid from her lumbar puncture was initially negative for DNA of *L. monocytogenes*, but subsequent testing of lumbar puncture cerebrospinal fluid (CSF) was twice positive for the DNA of *L. monocytogenes* on May 4, 2017. She was later treated for mobility dysfunction secondary to *Listeria* meningeoencephalitis

17. Both of two blood cultures tested positive for Gram positive rod bacteria (Bates page 808) (bacterial characteristics consistent with *L. monocytogenes*), and the bacteria isolated from those blood cultures were shown to be positive for the DNA of *L. monocytogenes* by the NAT (Nucleic Acid Test) (Bates page 808, 839). This confirmed that the identity of the blood pathogen was *L. monocytogenes.*

18. Ms. Achkar's family had produced the unfinished package of Queso Fresco Crumbling Cheese, and I have been supplied with a photograph of the original product package. A statement in a document produced in this case said: "*The*

[1] Polymerase chain reaction is a powerful method of DNA amplification that is highly sensitive and specific

family...are sure this is the cheese that the case-patient opened and ate before illness onset" (Bates page 100119).

19. The contents of this package were turned over to the Pennsylvania Department of Health, and subsequently tested by the VIDAS® method for *Listeria*[2] by the Bureau of Laboratories, Exton, PA. The cheese sample was labelled as F1 #17-103, specimen number 17008596, "Queso Fresco".

20. Testing results on sample 17008596, *L. monocytogenes* detected, VIDAS result documented as a POSITIVE (laboratory printout, marked as Completed 12 May 2017, page labelled 1 of 1).

21. The sample 17008596, *L. monocytogenes* detected, was incubated on CHROMagar for *Listeria*, and separate isolates were tested, labelled on the report as 1, 2, 3, 4, and 5. All five isolates gave typical (T) growth on TSAYE media; all five isolates gave a positive (+) catalase test; all five isolates gave a positive (+) hemolysis test, all five isolates were positive (+) for bacterial motility; all five isolates were positive (+) for hemolysis, and all five isolates showed the presence of Gram-positive rods (+ GPR). All of the results, for all of the isolates, were consistent with the isolation and identification of *L. monocytogenes* from the cheese sample 17008596 analyzed by the Pennsylvania Department of Health.

22. I received an additional set of documents with cover letter dated December 12, 2018, including correspondence and documents from the Commonwealth of

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method for detecting pathogens. For over 25 years, it has been regarded as a reliable method by professionals in the field of molecular biology and food microbiology.

[2] The VIDAS® kit is a high performance commercially available product that is internationally validated, designed for the specific detection of *L. monocytogenes* in food products, with both enhanced specificity and sensitivity. The testing method is accepted by professionals in the field of food microbiology, as a reliable testing method.

Pennsylvania, Governor's Office of General Counsel. The documents were released for discovery in this case.

23. The document set referenced above (Bates Pages 100050-100172) contained pages that were extensively redacted, and included strings of (redacted to anonymous) e-mail conversations related to testing of the *L. monocytogenes* clinical and cheese isolates of this case, as part of an epidemiological investigation, apparently through the cooperation of the CDC and FDA. Because of the extensive redactions, it was difficult to place each investigation into context, but my examination of the document set uncovered the following clear facts:

   a. The *L. monocytogenes* bacteria originating from the body of Ms. Achkar was tested by Pulse Field Gel Electrophoresis (PFGE)[3]. Similarly, the *L. monocytogenes* bacteria originating from the cheese sample of Queso Fresco cheese was tested by PFGE. The two bacteria were identical (Bates Page 100092).

   b. A correspondence stated "*On Friday, May 26, 2017, PA reported that the cheese sample was a match by PFGE to the clinical isolate.... The positive cheese sample was La Morenita brand Queso Fresco, which is produced by the Wisconsin Cheese Group.*" (Bates Page 100092).

   c. This is important because while previous testing had shown that Ms. Achkar was infected with *L. monocytogenes* and that the cheese was also

[3] Pulse Field Gel Electrophoresis (PFGE) is a "DNA fingerprinting" technique used by PulseNet National Laboratory Network, to connect foodborne illnesses to their infection source, and to connect other cases of similar illness within the United States (Moura et al., 2016). The testing method is accepted by professionals in the field of food microbiology as a reliable testing method.

infected with *L. monocytogenes*, this additional laboratory testing goes beyond that. It proved that the exact same isolate of *L. monocytogenes* was found in both Ms. Achkar and the cheese. It was a match (Bates Page 100092): *"PFGE is complete and the cheese isolate does match the patient."* (Bates Page 100100).

d. The documents included a CDC Listeria Initiative Case Report Form with a food history that was obtained from Ms. Achkar's son during interview on May 5, 2017. The food history is comprehensive (Bates Pages 100061-100067), and among other things, establishes that Ms. Achkar consumed only pasteurized, commercially produced whole milk from Giant Market (Tilghman Street, Allentown, PA). She did not consume unpasteurized (raw) milk in the four weeks preceding the onset of her illness (Bates Page 100062). This is an important fact because the consumption of raw milk may be associated with an increased risk of Listeriosis.

e. The document set included remarks that "*cross contamination* (of the Queso Fresco) *cheese could not be ruled out*" (Bates Page 100092). There is no evidence that the Queso Fresco cheese was cross contaminated. The cheese sample provided and tested was an important link to her disease, as it was cheese from that very package that allegedly made her sick.

f. The document set included speculation that the vehicle of *Listeria* contamination may have been string cheese rather than Queso Fresco cheese. This is unlikely because the string cheese purchased by the

Plaintiff was also procured and repeatedly analyzed, with each test result consistently negative for *Listeria* (Pennsylvania Department of Health). It was tested so thoroughly, in fact, that the entirety of the package was consumed by testing: ("*we tested ...pretty much the entire sample. All screened negative for Listeria monocytogenes*). (Bates Page 100143).

24. There are peer-reviewed manuscripts that establish that cheese (including soft cheese, as described here), if improperly manufactured, packaged, transported, stored or marketed, could be a source of *L. monocytogenes* food contamination leading to human illness (Beckers et al., 1987; Bannister, 1998; McLauchlin et al., 1990, Lahou and Uyttendaele, 2017).

25. *L. monocytogenes* is a Gram-positive rod bacterium that is a facultative intracellular pathogen. The CDC describes human infections: "People with invasive listeriosis usually report symptoms starting 1 to 4 weeks after eating food contaminated with *Listeria*; some people have reported symptoms starting as late as 70 days after exposure *or as early as the same day of exposure*"[4] (emphasis added). Thus, the rapid progression of severe disease soon after consuming food contaminated with *L. monocytogenes* is consistent with the CDC defined incubation period.

26. Rapid progression of symptomatic Listeriosis was specifically documented by Azadian *et al.* (1989), who reported symptoms developing *L. monocytogenes* meningitis less than 24 hours after eating contaminated cheese in a previously healthy, fit, immunocompetent 40 year old woman. Pointedly, if such rapid

[4] Listeria, United States Centers for Disease Control and Prevention, at this link:

progression occurred in an *immunocompetent young person*, such rapid progression was possible for Ms. Achkar, a *76 year old immunocompromised* woman (see below, paragraph 32).

27. I examined a document set with cover page letter from the Food and Drug Administration, dated August 16, 2017 (Bates Pages 100180-100231). The document set includes a report of FDA inspection (performed on June 28, 2017) of the Wisconsin Cheese Group Manufacturing Facility, Monroe, Wisconsin; including descriptions of environmental swab samples for *Listeria* contamination, and an Overview of Corrective Actions from FDA Investigation. The inspection environmental swabs did not show *L. monocytogenes*, but some swabs showed facility contamination with *Listeria innocula*.

28. The FDA SUMMARY OF FINDINGS (Bates Page 100213) stated that: *"This assignment is related to an ongoing investigation of an outbreak cluster of* Listeria monocytogenes *associated with the consumption of cheese. The cluster consists of 3 cases from PA, NJ and TX, with isolation dates from 5/3/2017 to 5/19/2017. An unopened consumer sample of La Morenita brand Queso Fresco cheese has tested positive for L. monocytogenes and is highly related to the clinical case isolates by whole genome sequencing*[5]*"*. This confirms that Ms. Achkar's bacteria isolate, and the bacteria from the cheese package were the same isolate (and further, that this same isolate was also detected in sick patients from New Jersey and Texas within roughly the same time frame).

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https://www.cdc.gov/listeria/symptoms.html Accessed on December 14, 2018.

[5] Whole genome sequencing (WGS) is an established procedure (Moura et al., 2016) that examines the DNA sequence of the organism in question, and is able to connect bacteria from human illnesses to potential food sources of contamination. The testing method is accepted by professionals in the field of

29. The FDA document set included information (Bates Page 100215) that the shelf life of the La Morenita Queso Fresco has a 90 day from date of manufacture. In the present case, with SELL BY date of 4/18/17, the manufacture date of the cheese would have been on or about 1/18/17. That means that the FDA inspection of 6/28/17 occurred more than five months after the contaminated cheese was manufactured. Negative swab samples do not establish that the facility was clean on the date of manufacture, five months earlier.

30. I have not seen any evidence of FDA inspection, environmental swabbing, collection or *Listeria* testing at the sister facility which would have been used for packaging the Queso Fresco cheese (3rd Street, Monroe, WI) (Bates Page 100215).

31. Ghosh and Higgins (2018) wrote that *L. monocytogenes* is one of the most deadly food-borne pathogens worldwide. Ingestion of *L. monocytogenes* contaminated food can lead to listeriosis in humans, a severe invasive disease targeting among other populations, the elderly and immunocompromised individuals. (Engelen-Lee, *et al.*, 2018; Ghosh and Higgins, 2018).

32. Ms. Achkar, as a 76 year old woman being treated with Enbrel® (etanercept) for rheumatoid arthritis, was in fact a person of enhanced risk for disease if she were to consume food contaminated with *L. monocytogenes*. Her medical records document her immunocompromised status. Likewise, the CDC Listeria Initiative Case Report Form (Bates Page 100059) documents Ms. Achkar's immunosuppressed status related to her use of Embrel®.

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food microbiology as a reliable testing method.

33. To summarize and to restate, Mrs. Achkar consumed cheese shown by the Pennsylvania Department of Health testing to be contaminated with *Listeria monocytogenes*. The isolate from the cheese was the exact isolate that was recovered from her body. As an elderly woman undergoing drug therapy with etanercept for treatment of rheumatoid arthritis, she was at a particular risk should she consume food contaminated with *L. monocytogenes*. This is important because it explains how contaminated cheese could rapidly make one person gravely ill, and other persons who may have consumed similarly contaminated cheese (for example, of the same manufacturing lot) would not have gotten ill. The rapid clinical development of Ms. Achkar's illness, with its short incubation period, is consistent with her relative personal risk.

34. The bacteria from the La Morenito Queso Fresco cheese and Ms. Achkar's body were a perfect match. There is no evidence that any other food was the vehicle for infection, including raw milk or string cheese. The laboratory evidence links only the La Morenito Queso Fresco cheese with the illness.

35. Based on facts and evidence summarized above, and on conclusions drawn from those facts, it is my concluding opinion that Ms. Noujoud Achkar suffered a systemic infection of *L. monocytogenes*, as a result of consuming La Morenita Brands Queso Fresco Crumbling Cheese contaminated with *L. monocytogenes* bacteria, and that this was the proximal cause of her *Listeria* sepsis, *Listeria* bacteremia, *Listeria* meningitis, *Listeria* meningeoencephalitis, including her brain abscess and intracranial *Listeria* infection.

36. All of my opinions are held to a reasonable degree of scientific certainty.

37. The information contained herein reflects my examination of documents up to the date of this report. I reserve and request the right to revise and extend my opinions to reflect any new information that may become available to me resulting from further discovery in this case.

38. Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

FURTHER AFFIANT SAYETH NAUGHT

Michael A. Sulzinski, Ph.D., LLC
Scranton, Pennsylvania
January 17, 2019

Commonwealth of Pennsylvania)
)
County of Lackawanna)

SUBSCRIBED AND SWORN TO BEFORE ME by the said MICHAEL A. SULZINSKI on the 17th day of January, 2019, to certify which witness my hand and seal of office.

NOTARY PUBLIC IN AND FOR
THE COMMONWEALTH OF PENNSYLVANIA

Commonwealth of Pennsylvania - Notary Seal
Elisa S. Gibson, Notary Public
Lackawanna County
My commission expires July 15, 2022
Commission number 1031425
Member, Pennsylvania Association of Notaries

APPENDIX I:
Documents Examined

Medical records of Ms. Achkar, from May 2, 2017 and throughout her hospitalization and subsequent treatments.

Photographs of cheese package, La Morenita Brands Fresco Crumbling Cheese Queso

Document set with cover page letter dated November 5, 2008; Pennsylvania Department of Health Testing Documents, 9 pages, May 2017

Document set with cover page dated December 4, 2018 (Food and Drug Administration) (Bates labelled 100180-100231)

Document set with cover page letter dated December 7, 2018 (Bates Pages 100050-100172)

Documents related to *Achkar and Achkar vs. Wisconsin Cheese Group, L.L.P., d/b/a La Morenita Brand, and Walmart, Inc.*

- COMPLAINT
- PLAINTIFFS' REQUEST FOR PRODUCTION OF DOCUMENTS AND THINGS ADDRESSED TO DEFENDANT
- ORDER
- SETTLEMENT CONFERENCE SCHEDULING ORDER

Deposition transcript of Noujoud Achkar, December 17, 2018
Deposition transcript of Joseph Achkar, December 17, 2018
Deposition transcript of Fadi Achkar, December 17, 2018

Peer-Reviewed Publications:

Azadian, B.S., Finnerty, G.T., and A.D. Pearson. 1989. Cheese-borne Listeria meningitis in immunocompetent patient. The Lancet 333: (8633): 322-323.

Bannister, B.A. 1987. Listeria monocytogenes meningitis associated with eating soft cheese. *Journal of Infection* 15: 165-168.

Beckers, H.J., P.S.S. Soentoro and E.H.M. Delfgou-van Asch. 1987. The occurrence of Listeria monocytogenes in soft cheeses and raw milk and its resistance to heat. *International Journal of Food Microbiology* 4: 249-256.

Engelen-Lee, J.-Y., M.M. Koopmans, M.C. Brouwer, A. Aronica, and D. van de Beek. 2018. Histopathology of Listeria Meningitis. J. Neuropathol. Exp. Neurol 10: 950-957.

Ghosh, P, and D.E. Higgins. Listeria monocytogenes infection of the brain. 2018. *Journal of Visualized Experiments* 140: e58723, 1-7.

Lahou, E. and M. Uyttendaele. 2017. Growth potential of *Listeria monocytogenes* in solf, semi-soft, and semi-hard artisanal cheeses after post-processing contamination in deli retail establishments. *Food Control* 76: 13-23.

McLauchlin, J., M.H. Greenwood and P.N. Pini. 1990. The occurrence of Listeria monocytogenes in cheese from a manufacturer associated with a case of listeriosis. *International Journal of Food Microbiology* 10: 255-262.

Moura, A., Criscuolo, A., Pouseele, H., Maury, M.M., Leclercq, A., *et al.* 2016. Whole genome-based population biology and epidemiological surveillance of Listeria monocytogenes. Nature Microbiology, Nature Publishing Group, 2016, 2, pp.16185.

MICHAEL A. SULZINSKI, Ph.D.
Department of Biology
Program in Biochemistry, Molecular and Cell Biology
University of Scranton
Scranton, PA 18510

Current Professional Employment:

The University of Scranton
Assistant Professor of Biology, 1990 - 1995
Associate Professor of Biology (Tenured), 1995 – 2001
Professor of Biology, Program in Biochemistry, Cell and Molecular Biology
2001 - Present

Teaching Awards:

- 2005 University of Scranton *CASE Professor of the Year* Award
- University of Scranton, Class of 2005, *Teacher of the Year* Award
- *Edward Gannon, S.J., Memorial Award for Teaching*, *Alpha Sigma Nu* Jesuit Honor Society, 2007

Research:

Developing a rapid, sensitive and specific real-time PCR diagnostic assay for the detection of *Burkholderia gladioli*, an opportunistic pathogen in patients with cystic fibrosis.

The Commonwealth Medical College,
Scranton, PA
Adjunct Professor, Microbiology and Immunology (June 2008 – Present)

Previous Professional Employment:

Senior Research Scientist — March 1987-August 1990
Roche Diagnostic Systems
Hoffmann-La Roche, Inc.
Nutley, New Jersey

Molecular Biologist — December 1984-March 1987
Lederle Laboratories
American Cyanamid Company
Pearl River, New York

EDUCATIONAL BACKGROUND

Cornell University, Ph.D. 1984
Major: Plant Pathology
Minor: Biochemistry & Molecular Biology

Research: Thesis project included the molecular characterization of a new subgenomic mRNA of Tobacco Mosaic Virus (TMV). This polyribosome associated RNA was mapped on the TMV genome, and was shown to contain a large open reading frame encoding a protein.

Academic Honors:
Outstanding Teaching Award
National Science Foundation Research Fellow
Andrew Dickson White Fellow
Kosciuszko Foundation Scholarship

The Pennsylvania State University B.S. 1980
Major: Plant Science

Research: Studied the role of an RNA-dependent RNA polymerase in healthy and virus-infected plants (Undergraduate Research Project)

Academic Honors:
Graduated with Highest Honors
GPA 3.86; Highest in graduating class
Named to Dean's List for all semesters
Awarded the following scholarships:
College of Agricultural Sciences Alumni Scholarship
Eva B. and G. Weidman Groff Memorial Scholarship
N. C. Harris Scholarship
Edna R. Schwab Memorial Scholarship
First Slovak Ladies' Association Scholarship
Arthur Gaspari Scholarship
Bayard D. Kunkle Scholarship
Louise Carnegie Scholarship

REFEREED PUBLICATIONS

Sulzinski, M.A., M.A. Wasilewski, J.C. Farrell and D.L. Glick (2009). Undergraduate virology exercises demonstrate conventional and real-time PCR using commercially available HIV primers and non-infectious target. *Biochemistry and Molecular Biology Education* **37**, 232-235.

Glick, D.L., C.M. Coffey and M.A. Sulzinski (2002). Simultaneous PCR detection of the two major bacterial pathogens of geranium. *J. Phytopathology* **150,** 54-59.

Sulzinski, M.A. (2001). Differentiation of *Xanthomonas campestris* pvs. *pelargonii* and *hederae* by PCR. *J. Phytopathology* **149**, 45-49.

Nameth, S.T., M.L. Daughtrey, G.W. Moorman and M.A. Sulzinski (1999). Bacterial blight of geranium: A history of diagnostic challenges. *Plant Disease* **83**, 204-212.

Sulzinski, M.A., B. Schlagnhaufer, G.W. Moorman and C.P. Romaine (1998). PCR-based detection of artificial latent infections of geranium by *Xanthomonas campestris* pv. *pelargonii*. *J. Phytopathology* **146**, 111-114.

Sulzinski, M.A., G.W. Moorman, B. Schlagnhaufer and C.P. Romaine (1997). A simple DNA extraction method for PCR-based detection of *Xanthomonas campestris* pv. *pelargonii* in geraniums. *J. Phytopathology* **145**, 213-215.

Sulzinski, M.A., G.W. Moorman, B. Schlagnhaufer and C. P. Romaine (1996). Characteristics of a PCR-based assay for *in planta* detection of *Xanthomonas campestris* pv. *pelargonii*. *J. Phytopathology* **144,** 393-398.

Sulzinski, M.A., G.W. Moorman, B. Schlagnhaufer and C. P. Romaine (1995). Fingerprinting of *Xanthomonas campestris* pv. *pelargonii* and related pathovars using random-primed PCR. *J. Phytopathology* **143**, 429-433.

Sulzinski, M.A. and L. M. Cimakasky. (1995). Leaf bisection for the enzymatic isolation of mesophyll protoplasts from *Saintpaulia ionantha*. *Biologia plantarum* **37**, 297-300.

Sulzinski, M. A., D. D. Jurkonie and C. S. Adonizio. (1994). Tobacco mosaic virus subliminal infection of *Saintpaulia ionantha*. *Journal of the American Society for Horticultural Science* **119**, 702-705.

Sulzinski, M. A. (1992). Tobacco mosaic virus: A safe introduction to Virology. *The Science Teacher* **59**, 42-45.

Sulzinski, M.A., K. Gabard, P. Palukaitis and M. Zaitlin. (1985). Replication of tobacco mosaic virus. VIII. Characterization of a third subgenomic TMV RNA. *Virology*

145, 132-140.

Palukaitis, P.F., F. Garcia-Arenal, M.A. Sulzinski and M. Zaitlin. (1983). Replication of tobacco mosaic virus. VII. Further characterization of single- and double-stranded virus-related RNAs from TMV infected plants. *Virology* **131**, 533-545.

Zaitlin, M., P. Palukaitis, F. Garcia-Arenal and M.A. Sulzinski. (1983). The characterization of single- and double-stranded sub-genomic RNAs from tobacco mosaic virus infected plants. In *Plant Infectious Agents* (ed. H.D. Robertson, S.H. Howell, M. Zaitlin and R.L. Malmberg), pp. 69-72, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Sulzinski, M.A. and M. Zaitlin. (1982). Tobacco mosaic virus replication in resistant and susceptible plants: In some resistant species virus is confined to a small number of initially infected cells. *Virology* **121**, 12-19.

TECHNICAL PATENTS

Romaine, C.P., G.W. Moorman and M.A. Sulzinski (1999). A polymerase chain reaction based diagnostic test for detection of *Xanthomonas campestris* pv. *pelargonii*. United States Patent 5,863,731.

Longiaru, M., S. R. Silver and M. A. Sulzinski (1998). Primers and kits for the detection of *Chlamydia trachomatis*. European patent EP 0 875 583 A2.

Longiaru, M., S. R. Silver and M. A. Sulzinski (1998). Biotin-labelled DNA by polymerase chain reaction and detection thereof. Australian patent AU-A-61894/98.

Longiaru, M., S. R. Silver and M. A. Sulzinski (1998). Diagnostic kit for detecting nucleic acid from *Chlamydia trachomatis*. Norway patent 302204.

Longiaru, M., S. R. Silver and M. A. Sulzinski (1998) Primers and probes for *Chlamydia trachomatis*. Australian patent AU-B-72804/94.

Sulzinski, M.A., S. R. Silver and M. Longiaru (1998). Primers and kits for the detection of *Chlamydia trachomatis*. European Patent EP0875583 A 19981104.

Longiaru, M., S. R. Silver and M. A. Sulzinski. (1993). Detection of *Chlamydia trachomatis* by polymerase chain reaction using biotin-labelled DNA primers and capture probes. United States Patent 5,232,829.

Sulzinski, M.A., M. Longiaru and S.R. Silver (1991). Biotin-labelled DNA by polymerase chain reaction and detection thereof. European patent EP0420260.

Twelve related international patents issued 1991-1999:

AU723602
ES2140372T
BR9004881
DE69033387T
ZA9007706
DE69033387D
AT187499T
AU685144
NZ247522
NZ235463
CA2026280
AU6329090

Presentations at scientific meetings (Name of presenter is underlined).

Scott, S.A. and M. A. Sulzinski (2014). Detection of commensal populations of Burkholderia gladioli as a potential reservoir for human infections. Presentation to the National Meeting of the American Society for Microbiology, Boston, MA (May 2014)

D.L. Glick, C. Gushue, H. Namdari, M. Wasilewski and M. Sulzinski. Development of a Quantitative Real-Time PCR assay for *Burkholderia gladioli*. Presentation to the 2009 Annual Meeting of the American Society for Microbiology, Philadelphia, PA. (May 2009).

M. A. Sulzinski and C. Giannetti (2004). Distribution of *Xanthomonas campestris* pv. *pelargonii* after leaf surface inoculation of geranium. Presentation to the National Meeting of the American Society of Plant Biologists. Orlando, FL.

Coffey, C.M. and M.A. Sulzinski (2001). Microtiter plate detection of PCR-amplified *Xanthomonas campestris* pv. *pelargonii* DNA. 2001 Annual Meeting of the American Society for Microbiology, Orlando, FL.

Glick, D.L. and M.A. Sulzinski (2000). Triplex PCR for bacterial pathogens of geranium and for demonstration of amplification competence. 2000 Annual Meeting of the American Phytopathological Society, New Orleans, LA.

Glick, D.L. and M.A. Sulzinski (2000). Simultaneous PCR detection of the two major bacterial pathogens of geranium. 2000 Annual Meeting of the American Society for Microbiology, Los Angeles, CA.

Sulzinski, M.A. and S.H. Kim. (1999). Differentiation of *Xanthomonas campestris* pvs. *pelargonii* and *hederae* by PCR. 1999 Annual Meeting of the American Phytopathological Society, Montreal, Canada.

Sulzinski, M.A., K.M. Teufel and C.P. Romaine (1998). Early multiplication and distribution of *Xanthomonas campestris* pv. *pelargonii* in inoculated geraniums. 1998 Annual Meeting of the American Phytopathological Society, Las Vegas, NV.

Sulzinski, M. A., B. Schlagnhaufer, G. W. Moorman and C. P. Romaine (1997). PCR-based detection of occult infections by *Xanthomonas campestris* pathovar *pelargonii* in geranium. 1997 Annual Meeting of the American Phytopathological Society, Rochester, NY.

Sulzinski, M.A., C. P. Romaine, K. Kelly and M. Tiffany (1997). PCR-based assay to detect *Xanthomonas campestris* pathovar *pelargonii*. Invited workshop on rapid diagnostic assays for plant pathogens. 1997 Annual Meeting of the American Phytopathological Society, Rochester, NY.

Sulzinski, M. A., G.W. Moorman, B. Schlagnhaufer and C. P. Romaine (1996). Characteristics of a PCR-based assay for *Xanthomonas campestris* pathovar *pelargonii.* 1996 Meeting of the Northeastern Division Meeting, American Phytopathological Society, Long Branch, NJ.

Sulzinski, M. A., G.W. Moorman, B, Schlagnhaufer and C. P. Romaine (1994). Detection of *Xanthomonas campestris* pathovar *pelargonii* by hybridization-specific PCR. 1994 Meeting of the Northeastern Division Meeting, American Phytopathological Society, Ithaca, NY.

Sulzinski, M. A., G.W. Moorman and C. P. Romaine. (1993). Detection and differentiation of *Xanthomonas campestris* pathovars by polymerase chain reaction. 1993 Annual Meeting of the American Phytopathological Society, Nashville, TN.

Sulzinski, M. A., D. D. Jurkonie and C. S. Adonizio. (1992). Subliminal infection of *Saintpaulia ionantha* by tobacco mosaic virus. 1992 Annual Meeting of the American Phytopathological Society, Portland, OR.

Adonizio, C.S., G.J. Negvesky, D. D. Jurkonie and M.A. Sulzinski. (1992). Characterization of the virus-host interaction between tobacco mosaic virus and *Saintpaulia ionantha*. 1992 Meeting of the Pennsylvania Academy of Science, Mount Pocono, PA.

Spadoro, J., M.A. Sulzinski, A. Butcher, S. Kinard, C. Hanson and M. Longiaru. (1991). Detection and differentiation of HTLV-I and -II DNA in clinical specimens using PCR and a rapid, non-radioactive microtiter plate assay. Fourth Annual International Conference on Human Retrovirology, Montego Bay, Jamaica.

Sulzinski, M.A., S. Silver, D. Casareale, R. Pottathil and M. Longiaru. (1990). A novel, rapid, colorimetric format for the detection of PCR amplified HTLV-I DNA. Paper presented at the Third Annual International Conference on Human

Retrovirology, Maui, HI.

Sulzinski, M.A. (1990). Polymerase chain reaction for detection of HIV and other viral pathogens. Invited presentation to Metropolitan New York Section of the American Association for Clinical Chemistry, held at New York City Department of Public Health, NY.

Sulzinski, M.A., S. Silver, A. E. Koopman, A. D. Barone and M. Longiaru. (1990). Microtiter plate capture and detection of biotinylated PCR products by oligonucleotide probes. Paper presented at the Annual meeting of the American Society for Microbiology, Anaheim, CA.

Sninsky, J.J., S. Kwok, K. Young, and M. Sulzinski. (1990). Polymerase Chain Reaction: State of the Art. Invited workshop at 6th Annual Clinical Virology Symposium, Pan American Society for Clinical Virology, Clearwater, FL.

Longiaru, M., S. Silver, A.D. Barone, D. Pawlyk and M.A. Sulzinski. (1990). The use of PCR and a colorimetric microtitre plate assay format for the detection and differentiation of HTLV-I and -II DNA. Paper presented at the Sixth International Conference on AIDS, San Francisco, CA.

Sulzinski, M. A., M. R. Wilson, A. Chan, and T. R. Ubertini. (1985). Partial sequence characterization of excreted poliovirus RNA after primary administration of oral poliovirus vaccine. Paper presented at the 1985 Meeting on Modern Approaches to Vaccines, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Sulzinski, M. A., P. Palukaitis and M. Zaitlin. (1984). Partial characterization of a newly-discovered TMV sub-genomic RNA. Paper presented at the Annual meeting of the American Society for Virology, University of Wisconsin, Madison.

Sulzinski, M. A., P. Palukaitis, K. Gabard and M. Zaitlin. (1984). Characterization of a third TMV sub-genomic mRNA. Paper presented at the Sixth International Congress of Virology, Banff, Canada.

Sulzinski, M. A., P. Palukaitis, F. Garcia-Arenal and M. Zaitlin. (1983). A re-examination of sub-genomic TMV-RNAs. Paper presented at the Annual meeting of the American Society for Virology, Michigan State University, East Lansing, MI.

Sulzinski, M. A. and M. Zaitlin. (1982). Tobacco mosaic virus replication in subliminally infected plants. Paper presented at the Annual meeting of the American Society for Virology, Cornell University, Ithaca, NY.

Sulzinski, M. A. and M. Zaitlin. (1981). Tobacco mosaic virus is confined to those few initially infected cells resulting from mechanical inoculation of cowpea leaves. Paper presented at the Northeastern Division Meeting of the American Phytopathological Society, Swan Lake, NY.

APPENDIX

PROFESSIONAL MEMBERSHIPS

Member, Sigma Xi Scientific Research Honor Society
Member, American Phytopathological Society
Member, American Society for Microbiology
Member, American Association for Clinical Chemistry
Member, American Society for Virology